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Art. I. — *Transplanting Large Trees, or Alanton Park as Wooded between* 1816 *and* 1821.

We present our readers with the annexed engraving of a view of a Park, wooded by the transplanting machine for the purpose of introducing the subject of removing large trees, the importance of which has recently engaged the attention of many individuals of our community.

This branch of Arboriculture will, we doubt not, in process of time, receive the attention and study of physiologists of the country, commensurate with the increasing taste for ornamental planting which is exhibited annually at the country residences near the principal cities of the United States.

For this view and for the following remarks, we are indebted to Mr Geo. C. Thorburn, of New York, who has presented us with a copy of "*Stuart's Planter's Guide*," recently published by him. We make the following extract from the work, giving a history of the operations performed by Sir H. Stuart, to give immediate effect to wood.

"At the place from which these pages are dated, they found a Park of limited extent, and possessing no particular claim to beauty, but visited from curiosity by many persons, within the last ten years. It consists of about a hundred and twenty English acres, abundantly clothed with trees and underwood of every common species, by means of the transplanting machine; and exhibiting within itself a *practical illustration* of every principle laid down, and every theory held forth in this Essay. The single trees and bushes, in groups and

open dispositions, amount to about seven hundred in number, exclusively of close plantations and copse-wood. Their size, when removed, was not great, the largest not exceeding from thirty to forty feet in height, and from three, or three and a half, to five feet in girth, at a foot from the ground; but many of them were of much smaller dimensions. The height of the bushes or underwood removed was from four to ten feet, and consisting of every sort usually found on the banks and lakes of rivers. But size, in an art founded on scientific principles, is a mere matter of choice and expenditure; for trees of the greatest size are as susceptible of removal, as those of the least. It was desirable, however, as almost everything was to be done here, in the way of Park-wood, to limit the operations to the smallest possible expenditure, consistently with producing some effect on the foreground, and middle distance of the landscape, and with careful execution.

"There was in this Park originally no water, and scarcely a tree or a bush, on the banks and promontories of the present lake and river; for the water partakes of both those characters. During the summer of 1820 the water was executed; and in that and the following year, the grounds immediately adjoining were abundantly covered with wood, by means of the transplanting machine. Groups and single trees, grove and underwood were introduced, in every style of disposition, which the subject seemed to admit. Where the turf recedes from, or approaches the water, the ground is somewhat bold and irregular, although without striking features of any sort: yet the profusion of wood, scattered over a surface of moderate limits, in every form and variety, gave it an intricacy and an expression, which it never possessed before.

"By the autumn of the *third* year only after the execution, namely 1823, when the Committee of the Society honored the place with their inspection, the different parts seemed to harmonize with one another, and the intended effects were nearly produced. What it was wished to bring forward, appeared already prominent. What was to be concealed, or thrown into the background, began to assume that station. The foreground trees, (the best that could be procured,) placed on the eastern bank above the water, broke it into parts with their spreading branches, and formed combinations, which were extremely pleasing. The copse or underwood, which covers an island in the lake, and two promontories, as also an adjoining bank that terminates the distance, was seen coming down nearly to the water's edge. What was the most important of all, both trees and under-

wood had obtained a full and deep-colored leaf, and health and vigor were restored to them. In a word, the whole appeared like a spot at least forty years planted.

"The actual extent of surface, to which this cursory delineation refers, does not exceed from forty to fifty acres; but the intricacy and variety, created solely by various dispositions of *wood* upon an uneven surface, confer on it, to the eye, indefinite limits. In confirmation of this remark, the reader is referred to the frontispiece, where he will find a view of the Park taken in 1827, from the western side of the lake; it was soon after the planting of the steep bank or head in that quarter, as is designated by the transplanting machine, which is seen still remaining on the ground. The spot is nearly *opposite* to that, from which it was viewed by the Committee of the Highland Society. The whole of the Park thus delineated was wooded by the machine, whether in masses, or detached groups of trees, between the years 1816 and 1821, but chiefly in the latter, excepting only the distant or bounding lines of plantations, over which a few old trees are here and there seen to elevate their heads."

Art. II.—*On the Introduction of the Vegetable Productions of China.* By Hon. H. A. S. Dearborn.

Roxbury, Dec. 14, 1835.

To the Editor of the Horticultural Register,

My Dear Sir,—Notwithstanding the intercourse which has subsisted, between China, and most of the commercial nations of Europe, for more than two centuries, how little attention has been bestowed upon the agriculture and vegetable productions of that mighty empire. Within a few years, however, horticulture has been enriched by the acquisition of several varieties of magnificent plants, some of which now constitute the most admired selections of our gardens and green-houses. The superb Camellias, the ever flowering and other beautiful varieties of Roses, and the splendid family of Chrysanthemums are samples of the floral treasures of Eastern Asia; and the Morus Multicaulis, which has recently been obtained, is justly considered as one of the most precious gifts, which could be bestowed upon our country. These alone are sufficient to excite a deep interest, in relation to a region, which possesses such beautiful and

valuable objects of cultivation; and an ardent desire is consequently induced, for extended investigations, to ascertain whether other equally as desirable additions, cannot be made, to the products of our farms and conservatories.

No portion of our fellow-citizens have been more liberal and active, in whatever tends to advance the arts of civilization, than those who have been so successfully engaged in oriental expeditions, since the first voyage made from the United States to Canton, in 1784; and we can, with the fullest confidence, rely upon their disposition, zealously to co-operate with the emulous cultivators of the soil, for obtaining from distant nations, all the varieties of fruit trees, flowers, esculent vegetables, and such others, as may be useful, in any of the departments of national industry, or gratify the taste of the horticulturist. It is only necessary that they should be apprised of the benefits, which they have it in their power to bestow upon their countrymen, to insure their realization.

An exalted spirit of inquiry and a generous disposition to advance the best interests, prosperity and glory of the nation, has ever been one of the great and honorable characteristics which has distinguished commercial adventure. Whenever, and wherever it has attained pre-eminence, the whole people have not only been accelerated in the progress of refinement, but have reached an elevation, which has never been approximated, where navigation, or foreign trade, in some manner, was not fostered, and encouraged. Tyre "the mart of nations," was the creation of merchants, whose numerous fleets made the world their tributaries, and whose affluence acquired for them, the appellation of "princes, and the honorable of the earth." The ruins of Palmyra and Balbec are monuments of their industry, energy, and wealth, during the ages of remote antiquity. In the midst of a desert, cities were reared, as entrepots, for the innumerable caravans, which passed between the Mediterranean and Euphrates, whose extent and architectural embellishments were unrivalled. The drifting sands were subjected to tillage and covered with verdure. Fields and gardens were refreshed by artificial streams and fountains, and luxuriant groves shaded the earth, which for hundreds of years, had been swept by the blasting influence of the scorching sirocco. In after times, wherever commerce has established her emporium, it has been the nucleus around which all the arts have rapidly concentered, and man has developed his most exalted attributes of genius and taste. Who reclaimed, from the

waves of the ocean, the cities and prolific fields of Holland? Who has most contributed to render England a "precious gem, set in a silver sea?" Who has given that mighty impulse to our tillage, which has enabled it, in so brief a period, to pass the Alleghanies and to advance with such rapid strides beyond the Mississippi? Are they not the triumphant results of that zeal, intelligence and enterprize which navigation excites, and is cherished by commercial patronage?

To our merchants, and especially those who have been engaged in the lucrative trade beyond the Cape of Good Hope, are we much indebted for the great improvements which have been made, in useful and ornamental cultivation, during the last thirty years, in the vicinity of Boston, and other maritime towns of the State. The well tilled farms, magnificent gardens, prolific graperies, and splendid green-houses, with their choice collections of fruits and superb flowers, which have rendered Massachusetts so celebrated throughout the Union, for her advancement in horticulture, are the happy results of their meritorious exertions and commendable example. Among those who have most contributed by their munificence and practical illustrations, the names of Col. Thomas H., James, and S. G. Perkins, Lyman, Pratt, Preble, Barrell, Prince, General and Hersey Derby, Parsons, — father and son, Bussey, Cushing, Lee, Crowninshield, and the Winships are eminent for their indefatigable and successful labors. To those gentlemen then, who still survive, as the revered benefactors of the republic, and their liberal minded successors or competitors, whose argosies now cover every sea and are daily visiting every clime, we can appeal with confidence, to aid in the introduction of whatever may tend to the advancement of rural economy, either in the objects of embellishment, or of profitable cultivation.

It is with poignant regret and profound humility, that Americans are obliged to declare, that no efforts of the national government can be named, for encouraging the labors of the husbandman, or advancing the knowledge of natural history, by the collection and distribution of seeds, plants and animals, which belong to the domains of agriculture, and gardening, or by specimens in zoology, botany and geology. While the maritime nations of Europe have sent public ships round the globe, to obtain intelligence and such natural or artificial productions, as might be rendered subservient to the economical arts, or illustrate science, this republic has done nothing. So far from it, even in commerce, — one of the greatest, and most pros-

perous branches of national industry, our bold and adventurous mariners, have been compelled to pioneer their way, into the harbors of every continent, explore all the isles of the deep, and open a trade with every people upon the earth, long before it was attempted, on the part of the executive, or Congress, to facilitate their operations, by the establishment of friendly, or commercial relations, with either. The diplomacy of the United States, instead of preceding, has lingered far in the rear of the daring expeditions of the American Argonauts; and many a Colchis has been discovered and the "Golden Fleece" brought triumphantly back, before the existence, or even the name of our country, had reached those distant shores. In some instances, negociations have been tardily opened, when complaints of outrage had been made, and wrongs demanded redress; but this is not sufficient, for either the interests or honor of the nation, and it is sanguinely anticipated, that more enlarged views, a more enlightened policy and more liberal measures will soon prevail, and that voyages of geographical and scientific research will be projected, which shall quadrate with the character, vast resources and dignified station which this nation maintains among the empires of the earth.

Explorations and hydrographical surveys of our coast, on the Pacific Ocean, so important to navigation, have not been undertaken, and that immense region is less known to our citizens, than the Russian dominions north of Nootka Sound, although a third of a century has elapsed since its acquisition. We have squadrons officered by as intelligent, gallant and enterprising gentlemen, as walk the decks of the proudest navies that float, which are cruising in every sea and visiting all the nations of Europe, Africa, Asia and this western continent; yet no instructions have been given, funds appropriated, or appointments conferred, to advance science, or benefit the country, by the introduction of the vegetable or animal productions of those countries whose ports they enter. With gratitude and commendation, however, it should be acknowledged, that many of our naval officers, from a generous spirit of patriotism, the promptings of a highly cultivated mind, and the dictates of a refined taste, have done much, for the benefit of their fellow-citizens, and the nation, by contributions to the public libraries, the museums of natural history and the academies of the arts, and by additions to the varieties of objects which are interesting to the cultivators of the earth. None feel more sensibly, or regret more deeply, the utter indifference of the national government, to these highly important investigations and researches,

than the naval officers. They meet, in every foreign port, the ships of England, France, Russia and Holland, charged with the honorable duties of acquiring nautical intelligence, correcting their national charts, opening new channels for commercial speculation, collecting specimens for the cabinets of science, and whatever may be deemed worthy of introduction to their several nations, to increase manufacturing industry and give an impulse to tillage. Such interviews cannot but excite painful sensations, from the lamentable and degrading contrast which they present, between the enlightened munificence on the part of the European sovereigns, and the disgraceful negligence of their own government. They anxiously wish and richly merit to be placed on a level, at least, in these respects, with the enviable condition of the officers of other fleets, who do not surpass them in skill, energy and ability, to maintain the glory of the flag, which waves over their heads.

The probability of finding in China, numerous valuable or ornamental trees and plants, better adapted to the climate of the United States, than those produced on the western coast of the eastern continent, has been repeatedly suggested; but as the reasons for this assumption, have been so clearly stated and conclusively urged by Mr Reynolds, in his very interesting journal of the voyage of the Potomac, under the command of Commodore Downes, it is desirable that they should be more generally known. I have, therefore, made the following extract, with an ardent hope, that some of the gentlemen, who are in constant correspondence with the "Celestial Empire," will become the benefactors of their country, by successfully transplanting such specimens of the vegetable products of that vast region as may be deemed either useful to the farmer, or interesting to the horticulturist.

Extract from Reynold's Journal of the Voyage of the U. S. Frigate Potomac Round the World, in the years 1831–2–3 and 4.

"A proper estimation, in this country, has never been placed upon the benefits which might result to agriculture, and particularly to horticulture, from an expedition to the coast of China. That country has a climate very similar to our own, arising from its similar position on the eastern edge of a great continent. Both are dry, and subject to greater vicissitudes of heat and cold than countries in the interior, or on the other side of the great continent. This being the

case, the vegetable productions suitable to the one, cannot but thrive well in the other.

"China has been a long time civilized, and the whole extent of its coast has been for ages under a government, which has paid more attention to agriculture, than any other government that has ever existed. Under such circumstances, it is impossible to be otherwise but that the vegetables and fruits of the various climates have been acclimated to a degree much beyond what they have with us, or in Europe, from whence we derive our fruits and vegetables.

"The territories of China, embracing both sides of the tropic of Cancer, we have every reason to believe, that the productions of the south, have been extended, as far as possible to the north, and those of the north to the south.

"By getting, therefore, fruits and vegetables from a country thus situated, we get the advantage of a thousand or more years of acclimation. For instance, we get our apples and pears from England and France. The apple we have not yet acclimated as far south as Georgia. There are, we believe, only one or two varieties, which, in the upper part of that State, prove fruitful in some years. Their flavor is very indifferent. So with the pear. Coming from the latitude of from fortytwo to fifty, it is unproductive south of Baltimore, and so with other fruits.

"Who can doubt but that, in a country in which the extension and prosperity of agriculture have been the great object of government, their fruits and other vegetables have, in the course of fifteen hundred years, been extending gradually to the south, so as to become used to a climate, which it will take nearly the same period to reach, with the varieties of fruits, which we now have. It is the same with the fruits and vegetable productions of the south. The tropical fruits and vegetables must have been brought as far north as they can be profitably cultivated. From fifteen hundred to two thousand years have been passed in this process of acclimation.

"Why should we undergo this long process, when a few thousand dollars may introduce them among us?

"It is well known, that among other plants, the sugar-cane may be gradually introduced into a climate which was at one time incongenial to it. The Otahite has been introduced into Louisiana. What a gain it would be to our country, if a variety could be procured which could be raised one degree further north than the Otahite! The advantages from this single plant alone would a thousand times

compensate for all the expenses of such an experiment. For the introduction into this country of the various fruits and vegetables which such a country as China must produce, might be attended with advantages almost incalculable.

"We have already received from China one animal, the benefits of which to our country surpass a thousand times the expenses which might accrue in setting on foot the proper inquiry in relation to this matter. The Chinese hog is the animal to which we allude. A long series of years devoted to the selection of animals having a propensity to fatten, could alone have produced the breed, which has added so much to the wealth of our farmers, and to the pleasure of our epicures, who admire a nice ham. What would our gardeners think of the immense piles of headed lettuce, described by travellers in China, as heaped up at the gates of the cities, preparatory to entering and being distributed among the morning markets? We have nothing of the kind in the United States or Europe. We cannot have, unless by hundreds of years of persevering industry and care.

"These things are more particularly of importance, because they are those in which the great mass of the community are directly and principally interested. They add to the comfort of the poorest, as much as they do to that of the richest. All are benefitted, and none could complain of an expenditure which all acknowledge is for the benefit of all classes and all sections. If there be any section that may be more benefitted than another, it is from latitude thirtytwo degrees south.

"The introduction of one single vegetable, the turnip, into England, changed the whole face of a large district of country, and rendered it, from being almost barren, one of the most fertile in the kingdom."

ART. III. *Observations on the Origin of Species, Varieties, and Variations in the Vegetable Kingdom.* Communicated by Professor JOHN LEWIS RUSSELL.

PERHAPS there is no subject in Physiological Botany so imperfectly understood by the generality of readers of Horticultural works, as is that of the reproduction and creation of new species and varieties of

vegetables, by the primary influence of the seed, that wonderful organ in the economy of the plant, the great and last master-piece of skill and wisdom, in which is enfolded with a precious and nice care, the glories of the future plant. At the point from whence ignorance begins to trace the rise and progress of vegetation, the seed, science ends; and although an analogy of this wonderful economy may be traced throughout every branch of the vegetable kingdom, yet in a great proportion of the species and genera, the analogy is far from exact. For instance, among the simple and almost rudimental stages of vegetation, as the microscopic algæ, this reproductive organ assumes a form scarcely dissimilar from the rest of the cellular tissue of the entire individual. Minute globules, from which issue rootlets and foliage, constitute these germs of vitality; and both conjoined, to the incurious eye, seem but the useless froth of stagnant liquids. But simple, and apparently fortuitous, as may seem these, no less subjects of skill or power, or objects for admiration are they, and oftentimes in their results, of great importance. Every science is dependent on another for the accuracy of its investigations: and even Geology, which in later days has been the favorite pursuit of the learned world, and attracted the attention and employed the talents of the brightest and most powerful minds, from these humbler, but no less important links in the creation, has drawn conclusions at once satisfactory and interesting.

But as we ascend the gradual scale of progressive developement, through the still imperfect, because least understood orders, we find the same curious organ assuming a more and still more definite form, until the hidden mysteries of Nature, evolve themselves under the different accompanying mutations of the reproductive economy.

And then from gemmiferous granules, frustrulæ, and vesicles, we come to the fully developed seed; the chaos, if such a term may be allowed, of Cryptogamia, to the perfection of Phænogamia. The analogy between seed and reproductive organ, indeed of both these and the bud, is still apparent; for many species of the Liliaceæ, evolve their plumules and radicles, before they have dropped from the capsule which contains them, — in fact, a viviparous progeny. These interlinks, though so puzzling to the systematist, are of intense interest to the simple student of nature, responding to his own deep conviction that her operations are without limits and bounds, an infinitude of variety.

From seeds, of whatever form, or under whatever modification, are

produced individual species, varieties and variations. This is the general law of organized vegetable bodies, but the simple continuance of these is not confined to this method. Almost every part of an individual plant, may be rendered capable of producing a perfect and unique counterpart of its parent stock. Ærial and subterraneous stems, leaves, branches, axillæ, bractes and bractæal appendages, petals and sepals, under peculiar and favorable circumstances, can become the means of reproduction. The lacerated foliage of the extensive lily family, push with readiness an infant progeny in the form of a little bulb. The crenatures of the leaf of "Bryephyllum," are each capable of evolving a stem and foliage; the leaf and appended petiole of "Gloxinia," and of "Hoya," are often substituted for more perfect cuttings by the florist, and the flat stems of the "Cacteæ," readily form proper plants. It is thus that vegetables seem the creatures of circumstances; the great end of their existence being the production of the seed; whatever tends to discourage such efforts, seems to modify their usual functions. Endued with an almost intuitive and provident care for their continuance and reproduction, the energy of the vital operations is expended in some other than the usual form, but which shall accomplish the end.

It is from the seed that we usually expect the species. A true species comprehends only those plants, therefore, which so much resemble each other in every important particular, as to make it evident that they proceeded from the same original parent. But notwithstanding the resemblance may be so striking as to denote them as one species, yet minor differences may exist, permanent in themselves, which are continued from generation to generation by the agency of the seed. These constitute a *race*, and several races may derive their origin from one species. But should impregnation occur, either by accident or design, between two races, it gives rise to another distinct form, called a *variety*, and this can only be propogated as a veritable variety by subdivision of its several parts. The seed of such a variety would invariably return to the original race or species, from which it sprung. Owing to some peculiarity of soil, exposure, disease, or the like, *variations* may occur, and these can only be continued by expedients similar to the circumstances under which they occurred.

Varieties are often misnomered *hybrids*. A hybrid must be the joint production of two distinct species by impregnation; and few such productions can form seed. In the animal economy all hybrids are

barren, and instances have been recorded of real vegetable hybrids raised between two species of *Verbascum*, and also of the species of *Digitalis*, the latter of which was decidedly barren.

Variations may be propagated by artificial means. "Pelargonium Zonale," sometimes produces distinct branches of a perfectly white or silvery foliage, and one plant with which I was acquainted, was particularly prone to this habit. Several varieties of the "Camellia," assume a similar appearance, sometimes curiously spotted or blotched. Sections of such branches, in the form of cuttings, or layers, or inarched scions might propagate these distinctive characters. It perhaps the most generally happens, that such aberrations from the usual course are too much dependent on soil or other fortuitous circumstances, to render them anything more than objects of curiosity. Flowers of some well defined varieties of the Camellia are thus very liable to singular variations; for instance, that commonly known as the "Double striped;" while beautiful and rare varieties of the gorgeous Dahlia, the pride of the garden, undergo strange mutations in different soils. From the identical parent root of one such, "Levick's Incomparable," two separate plants in different situations during the past summer produced very unequal flowers, the elegant white tipped petals of one, being comparatively frequent and regular, while they were scarcely observable on the other. No less remarkable the aberration in two plants of "Levick's Commander-in-chief," under similar circumstances, traceable in this instance entirely to the different qualities of the soil. Though no admirer of "Picta formosissima," yet I have seen among its almost innumerable flowers, some of the utmost regularity of stripes, and again others scarcely worthy its trivial name. Who has not been struck with the curious habits of the beautiful and fragrant Carnation, now blending in pictorial harmony its many and varied colors, and now producing one deep splendid dye over its every petal?

It is this curious, though universal law of the vegetable kingdom, which enables the operator to produce so many useful and beautiful objects to delight the eye or gratify the senses. The attention which has been paid to this subject in England, France, Belgium, and in some degree in this country, has been rewarded by treasures worthy the skill and pains employed. The singular and oftentimes unexpected results of such labors, have led physiologists to consider the theory of such mutations, and enter on studies which should elucidate the apparent mysteries of reproduction, and the permanent or acci-

dental influences, which result therefrom, and which affect the subjects of their researches.

It has been already mentioned that species and varieties, and even their mutations may be rendered permanent primarily by the seed, or subsequently by subdivision of their several parts. On the same principle of subdivision and increase by cuttings, is the common operation of grafting, so familiar to every cultivator. This practice is undoubtedly one of great antiquity, and probably derived its origin from the observation of a natural union, which often takes place between two living stems whose surfaces have been abraded of their bark, and rendered contiguous by accidental pressure. To insure the success of the operation it is necessary that the vessels of the liber, (which is composed of woody fibre and ducts) of both plants should meet, in order that the cambium or descending and elaborated sap should descend from the scion into the stock. This union and the developement of the scion cannot be regarded in any other light than as a modified cutting and the stock in which it is inserted the peculiar and necessary medium of nutrition.

Many idle and fanciful things and notions have heretofore obtained respecting the operation of grafting, such as the ready union of a scion on any stock; and some influence the scion has in modifying and indeed changing the character of the stock, or the stock, affecting to a greater or less degree, the scion. Thus the ancients mention that apples and vines were grafted on elms and poplars, though they add, that their duration was short; and Evelyn, among the more modern writers on the subject, tells us of a rose which he saw grafted on an orange tree in Holland; and even now though less rare than formerly, we hear of the practicability of roses being united to the black currant and barberry, producing yellow or black flowers. Should such union take place it could not be permanent, as it is an immutable law of vegetable increase, that to insure success the plants must be of the same family. The operation of grafting is therefore performed either to preserve a valuable variety, or to increase the individuals of such a variety. Viewed as a modified cutting in a peculiar and appropriate pabulum, the false theory of its influence exerted on the stock becomes apparent. By certain and curious experiments, Knight satisfactorily proved that each variety of fruit requires its own foliage to bring it to perfection; and it is equally well determined that although the ascending sap is identically the same in stock and graft, yet the different leaves of the latter by their own economy and

functions elaborate an entirely different cambium for its annual increase. The object of the cultivator is therefore to afford that abundance and strength of nutriment to the scion or graft, derived from a more mature and vigorous plant, which should more rapidly cause it to evolve its flowers or fruit.

Regard should be paid to the physiological characters of the individuals to be increased by grafting; such as the similarity in quantity of sap, the period of defoliation or a similarity of internal structure. The apple has thus been grafted on the hawthorn, and a complete union was effected, yet the healthy growth was confined to the stock to the detriment of the scion, which after protruding a few sickly leaves, perished at the end of summer.

Diseases like variations, may be continued by grafting. The health or vigor of the stock cannot modify or recreate the declining powers of the sickly scion. With the inherent qualities of the particular variety to which it belongs, it also possesses and must transmit the inherent disease of its parent stem. Valuable varieties cannot be saved from destruction, and recourse can be only had to the chance of a similar from the seed.

It is a common practice to destroy all the shoots or suckers as they are sometimes called, which protrude from the stock below the graft, because, as it is generally supposed, they divert the sap from the scion. A better reason may be assigned, that it is desirable to facilitate the full downward expansion of the alburnum by the descending current of the cambium, and thus render still more perfect the change effected by the operation of grafting. This principle being admitted, there has arisen an error in some minds, relative to the total change of the entire tree or plant. If after a certain period the annual deposition of alburnum by the descending cambium has identified the stock with its scion, should not the fortuitous bud evolved from the stem, be of the same character with those of the scion and produce the same quality of flower or fruit? The error consists in a mistaken notion of the origin of buds. Physiologists have demonstrated that *these exist in the first annual developement of the axis, stem or branch*, and are nourished by the medulla or pith; that they may remain dormant for any number of years, being protruded in this state and nourished by each successive annual layer, dying with the destruction of the plant, or called from their embryo state into full and living existences at any fortuitous

moment when their powers are needed, for its nourishment and vital functions. Whenever this may happen, their course may be traced from the very exterior point of appearance on the stem, to their first origin, by a pale line of parenchymatous matter, running to the very centre. This accounts for the rapid growth of suckers on the stumps of particular trees, especially of the willow and poplar, as also of some of our fruit trees after being cut down, and by an examination of a transverse section, this beautiful phenomenon may be perceived. When by accident or other cause a valuable variety of grafted fruit has been lost, no one expects to recover it by the protrusion of suckers or shoots from the stem; which should be the case did the annual deposition entirely alter the tree, as also he might reasonably expect, did the theory of Duhamel hold, that buds were preorganized germs, pervading every part of the plant and produced by the descent of the cambium, after its elaboration in the leaves.

Several instances of variation have been already considered, but among the more curious may be mentioned that of fruit. Particular varieties, it has been asserted, are more prone to this sportiveness than are others. The influence of soil, of exposure, air, and of many, almost trivial circumstances, may conspire in a great measure to produce these effects. That such is the case, almost every one's experience, can furnish instances of one and the same fruit grown on different soils, not only producing an earlier crop, but even where the ripening of the fruit is simultaneous, differences depending entirely on soil have originated dissimilar names. Undoubtedly on this account is it that our nomenclature of cultivated fruits is so deficient in accuracy, and so much needs investigation and study to reduce it to simple truth. Single and individual trees too, it is asserted, often produce on the same branches a considerable difference of quality in their fruit, so much indeed as to lead to the supposition that by subdivision or grafting, a permanent and peculiar variety might be perpetuated. Thus, slight differences, between branches such as exist in every tree, have been thought capable of producing permanent variations, through their particular organization. Extreme care in drawing conclusions, from such theories should be observed, because the modifying circumstances are so numerous, in producing what in fact are but transient or accidental deviations.

ART. IV. *On the Preparation of Flowering Plants, Fruits and Vegetables, for sale.* Communicated by Mr J. E. TESCHEMACHER.

To render articles for sale attractive to the eye at the first glance, to whatever use they may be afterwards appropriated, is the great art of a trader; and no articles of fancy require the application of this knowledge more than fruit and flowers.

If the French do not excel the English and the Dutch in the cultivation of many species of plants, at least they do in the elegant and graceful manner they prepare flowers for sale, in training the branches of plants naturally, in causing their juices to throw out shoots, flowers and buds in striking situations, in dwarfing some and forcing others into luxuriant growth — all which they effect by many little arts and secrets; and in the application of these, a host of florists (*jardiniers, fleuristes*) in Paris ardently vie with each other.

Those who have visited this celebrated capital and its flower-market, with the various horticultural establishments of Messrs Matthieu, Durand, Lemon, Fion, and others, where these little arts are practised in perfection, must allow that the French possess the talent of giving their flowering plants a more tasteful appearance, and, to use their own phrase, a more coquettish air than the gardeners of any other country.

One of the most common, as well as most universally adopted methods of acting on a plant by these gardeners, is *pinching off the buds;* and in describing the effect of this operation, I intend, besides my own experience, to add that of several of these French florists who have published something on this subject, particularly of M. Phillipar, gardener of the greenhouse at the Museum of Natural History at Paris.

When it is considered desirable to give a plant a dwarfish habit, and make it grow bushy and thick, it is effected by pinching out neatly and carefully the buds at the extreme end (top) of the branches: the result of this is to throw the sap back into the lower part of the plant, as it cannot find vent at the upper, and there it bursts out into numerous flower-bearing branches, instead of only forming one spike with blossoms at great distances. When these new buds are bursting out below, the art of pinching them out so as to leave others in proper situations, is put into use; a little practice and experience will soon give that facility and judgment which cannot be learned by the minutest description or instruction; but it is evident that this method is

less disfiguring to a plant than pruning, where the mutilated stump is exposed to sight until concealed by the foliage of the new shoots.

One example of this may illustrate, and it may be made with a plant which I hope ere long will be in every garden of the United States—the Gilia coronopifolia, noticed in the March number of the first volume of the Horticultural Register, under the name of Cantua coronopifolia.

In the open ground it would be a pity to mutilate this beautiful plant; but when grown in pots, for the greenhouse, if the centre spike is topped long before flowering it will send up numerous small spikes, clothing it from the surface of the pot, which will be covered with great abundance of its showy blossoms; whereas, unless this plan be adopted, there will be only one straggling, thick stem, with flowers at the top, looking naked and unsightly at the lower part.

In the arrangement of Chrysanthemum indicum, which is so ornamental in October and November, much is done by dwarfing the very tall sorts, so as to diminish the long, sticky branches, by means of early pinching out the buds at the top. This is the case, also, with Metrosideros and Acacia, which are certainly preferable when in pots, of a low stature and bushy, to being tall, thin and drawn up; they must then be pruned, and the shape will always remain bad; whereas a little experience in pinching out the buds will enable a gardener to throw out wood wherever he pleases. A great advantage of this method, when properly put into practice, is the dispensing with sticks or supports to plants, which however well made, have always a discordant appearance on the greenhouse stand.

One of the most proper periods to pinch out the tops of shoots, is when plants are repotted, and the roots are trimmed, because then the equilibrium between the roots and the upper part of the plant is thereby properly kept up.

When greenhouse plants are taken out for the summer, they should be occasionally turned round to prevent the growth of the roots through the hole in the pots, which would have to be cut off when they are returned to the house in the autumn, disfiguring the plant, by causing the tips of the young shoots to fade and die away.

Pelargoniums should only be thus trimmed and pinched after flowering. Heaths, Diosmas and Myrtles require this regulation to prevent their growing sticky.

Keeping the plants clean from dust, insects and brown leaves, the surface of the pots from moss and fringe, and the outside of them bright, is almost too obvious to be noticed. The sticks necessary for

support when indispensible should be green or brown shoots, so as to be as little conspicuous as possible; and in placing them, every regard must be had to the nature of the plant, whether it is upright and woody, trailing, or climbing; the ties with bass should be as small as convenient, and twisted to make it thin; the ends neatly cut off.

In France, when roses and other flowers are brought for sale in pots, the flowers are generally protected by pieces of white paper in the shape of cones (*cornets*) tied round them neatly, so that the sun does not scorch them, and they reach the houses of the purchasers without being spoiled. Under the buds and round the calyx or lower part of the flower a little cotton is stuffed between it and the stick, that it may be tied close without injury from rubbing. This is the method adopted in packing Auriculas, Polyanthus and other flowers for sending to the various exhibitions. They will thus travel many miles uninjured.

Herbaceous, perennial and biennial plants may always be kept for sale, at every period of the seasons, by transferring them from the seed beds into pots, so that even in the middle of the summer they may be turned out of the pot at once into holes prepared for them in the flower banks. There are very many advantages in adopting this system with herbaceous plants. Summer is the time when they show off their beauty, and if those who were delighted with them could carry away a plant at the time, while the effect of this beauty is on their minds, they would then purchase; but before the proper season arrives for transplanting, this effect is effaced or forgotten, and the very purpose of the nurseryman's showy garden, the sale of his plants, is lost.

Another advantage is, that those which are rather tender may be protected during the winter by moving them into the cellar, or in a pit, where they should be kept moderately dry; of course by keeping them in pots they become small in stature, but this is no eventual detriment, as they are soon restored to vigor in the open ground, particularly if planted in rich and congenial soil.

Many herbaceous perennials which are transplanted in the spring will not flower well the same year, but if they had been moved from pots the preceding summer or autumn, the fibrils of the roots would have taken sufficient hold of the earth to grow and blossom luxuriantly the following year; this is readily accomplished by having them thus for sale in pots; they can then be transferred in the summer, and have the great advantage of the autumnal rains to fix them in the ground.

In the extensive nursery of Messrs Loddiges, near London, a large stock of hardy plants is always kept on hand in this state, so that customers are never disappointed, and their example has been followed by many in the trade: rock plants are generally kept in pots. I have always been in the habit of keeping a reserve of perennials in pots for the purpose of presenting to amateurs and friends. The greatest pleasure, next to growing a beautiful flower, is that of disseminating it amongst those of similar taste.

But I must pass on to the second part of my proposed communication—the preparation of fruits and vegetables for sale: and in this part, I shall have to confine myself chiefly to the manœuvres practised for the London markets, which, although innocent, will probably raise a smile among some of your readers. Several have been published, but all are pretty well known there by the market gardeners, although they may be new here.

The great attraction of the grape, consists not only in the size of the bunches and of the individual grapes, but also in a beautiful white powder which covers them, called the bloom — to delineate which in a painting is considered indispensable, but requires great art in the artist. To preserve this bloom undisturbed, the bunches should be thinned when half their size, that the scissors may not rub any off when it is forming; and in houses where steam is sometimes admitted to moisten the atmosphere, great care must be taken that too much be not admitted at once to wet the grape, as water takes off this beauty, which, when once departed, can never be restored again by nature. Light and much air are quite necessary to produce a plentiful natural bloom; but if it is rubbed off and lost, it may be restored by suspending the bunches in a large close box, with a hole on one side, through which is puffed a quantity of very dry and finely powdered magnesia; this is done with an instrument called a puff-box, or with a circular brush charged with magnesia, which rubs against another; a quantity sifted through muslin or anything which will raise a very fine dust inside the box, without moving the fruit, will answer the purpose, taking care, however, not to cover it too much with powder, or in other words, not to overcharge nature.

Plums, particularly those of a dark color, are laid on small trays on a shelf in the same box, constructed of fine crossed wires so that the powder may reach every part. The same with peaches, figs and nectarines, and in fact all fruit which has naturally a bloom. In laying them out for show in dishes, much pains should be taken to decorate

them properly with leaves, particularly peaches, nectarines and round fruits, which are much set off by the contrast of green foliage; each fruit should recline gently as it were on a leaf, that is, it must not be pressed down. Leaves of a tender green are preferable for some fruits; for others, a darker color is more suitable; but those with beautiful and decided indentations, like the vine leaf and some of the mallow tribe, have the best effect. The black mulberry is good for decoration, but care must be taken to wipe off the juice which exudes from the foot stalk, otherwise it will injure the bloom. Variegated leaves are sometimes pleasing for this purpose, particularly those of the Aucuba Japonica. These leaves must always be laid with the stalks concealed. Where grapes are exposed for show in large quantities, the most imposing effect is produced by keeping the dark and light colored varieties in distinct masses; but where only small quantities exist, then the most pleasing appearance arises from contrast, by mingling both colors tastefully in the same dish. When grapes have to be conveyed any distance, the bunches should be hung in a box and several thin strips of whalebone or cane passed through holes in each side of the box, and through the bunches just under the forks of the fruit-stalk, to support the weight of different parts of the bunch, and to keep the bloom undisturbed.

Gooseberries should be placed in baskets or dishes ornamented with leaves; the different colored sorts mixed in equal proportions.

Currants ought to be carefully gathered, so that the bunches are not spoiled or broken; leaves neatly arranged round the edge of the basket dish, and in the middle, the fruit laid lightly in, the red and white properly mixed, with the largest bunches of each on the top.

Strawberries and Raspberries are to be decorated in the same manner; the latter fruit requires much care in picking, and should be eaten fresh, as it soon loses its peculiar flavor.

The Cucumber engrosses much of the gardener's attention in England, and great art is used in producing them of a fine color, with beautiful bloom, a straight form, and wanting none of those little prickles with which the skin of this vegetable is supplied and ornamented. To produce them in this state they must have plenty of light and as much air as the season of the year in which they are grown will allow; always supposing them to be cultivated in a frame or hotbed; the fruit must not be shaded by leaves, nor lie too close to the ground, otherwise it will not have that beautiful dark bluish green color so much desired, but will turn yellow underneath. To make

the cucumber grow straight, it should be laid when young in a wooden trough, with glass underneath, so that it cannot curl up. Fruit may often be made, in this way, to grow ten or twelve inches in length. To straighten them after they are cut, they should be kept in a cool, dry place, on a piece of board with holes made every half inch, and a back to place against the convex side of the cucumber; in these holes pegs are placed, which press the ends of the cucumber backwards, and finally straighten it considerably. To put on the prickle artificially, just moisten the spot on which it is wished to place it, with the smallest quantity of gum water, take up the prickle cut from another cucumber, with the point of a fine needle, and place it carefully on; when dry, lay round the base, with a fine camel's hair pencil, the smallest drop of liquid Indian ink. After this operation, the cucumber must be placed in the blooming box, to receive the finishing touch. Three such straight, fine fruit, well bloomed, placed in a basket on cucumber leaves, have a very handsome and attractive appearance. Some gardeners have been in the habit of producing an artificial bloom on fruit by exposing it to the fumes of sulphur; but this is neither so efficient nor so innocent as the fine dust of magnesia. A withered blossom adhering to the end of the cucumber, is generally thought requisite to perfect its appearance; when it has fallen off, another, taken from a fruit not quite fit to cut, is stuck on with a little gum and starch.

Many other artifices might be detailed, which add to the attraction of the products of the garden, and make them almost irresistible to those who find a pleasure and satisfaction in encouraging the industry and ingenuity of the gardener; but I fear I have already rather exceeded the limits assigned for a single communication.

ART. V.—*On the Selection of Hardy Herbaceous Plants, suitable for Ornamenting the Parterre, Border or Shrubbery.* Communicated by Mr JOSEPH BRECK.

IT is gratifying to witness the increasing taste for fine fruits and flowers, in our cities and villages, and to behold in every direction some small beginnings, at least, in the delightful art of Horticulture; which, if encouraged and persevered in, will make our beloved country like the garden of Eden; having an abundance "that is pleasant to

the sight and good for food." I shall feel myself happy if by my humble efforts, I can in any degree contribute to an object so desirable as increasing this taste. To effect this, it will be necessary to write, not for the professed amateur and horticulturist only, who, it is presumed are in full possession of all requisite knowledge, and already sufficiently excited by the success of their efforts to go on; but to those more particularly who are just opening their eyes to the beauties of the vegetable world, and taking their first steps in the road to the temple of Flora. To such it will be my design in this and in some future communications, to notice some of the most shewy herbaceous plants worthy of cultivation.

In my descriptions I hope I shall be excused if technical terms are used with explanations. It is necessary and proper they should be to the exclusion of common names, which are perplexing; as one plant in many cases has different names in different sections of the country. Batchelors buttons, for instance in one place is Centaurea cyanus, in another Gomphrena globosa, and in a third Hibiscus trionum; whereas the botanical language is universal.

I shall give the etymology of the generic names as they are explained by Loudon and other standard authors; many of which are of Greek or Latin origin, and given in honor of the discoverer, or from the qualities and habits of the plants.

The specific name refers to its peculiarities; as its manner of inflorescence; color, shape or odor of its flowers; shape, position and appendages of the foliage or stems; its location, time of flowering and height; or from the discoverer or some distinguished botanist or patron, &c.

The specific name may be compared with the christian name of a person; the generic to the surname; the order to a town; and the class to a state or kingdom.

I make these introductory remarks as there may be some, who without due consideration may think that in the use of botanical language, this is a useless and pedantic display of words.

Of all the hardy perennials, there are none, perhaps, of so easy cultivation, which are more pleasing than the numerous and highly ornamental family of Phloxes; yet but very few of the species are extensively known. The genus is exclusively N. American, and in the western and southern States is one of the most conspicuous ornaments of the prairies and woods. None of the species are to be met with in N. England; but in N. Jersey and Pennsylvania a few of

them may be found. It is said of an eminent British collector, Mr Drummond,* that on beholding a patch of Phlox subulata in one of the pine barrens in N. Jersey, he exclaimed "The beauty of that alone is worth coming to America to see, it is so splendid." With a good collection of Phloxes, the garden need not ever be destitute of beauty, as some of them are in bloom from April to October. Some produce a second crop of flowers if cut down immediately after the bloom is over, while others continue to display for months their untiring charms. It has been truly said by another writer, that "a collection of them properly attended to, would of themselves constitute a beautiful flower garden."

The late flowering sorts are much to be prized on account of their lively colors of purple, red and white, and form a fine contrast with the other autumnal flowers, which are mostly yellow. The vernal ones too are acceptable, though humble in growth, and delight the eye with their brilliancy and loveliness.

While many herbaceous plants require protection in winter, none of those I am about to describe need it, with the exception of the dwarf species, which are evergreen, the flower buds are formed in autumn, and should be slightly protected, or rather shaded. It is not so much the cold as the powerful March sun which does the damage; all that is necessary in most cases of protection is to prevent the action of the sun upon the plant when in a frozen state. Most of the species delight in a moist rich soil, but succeed tolerably well in almost any situation, provided it is not very light and dry. No plant is more easily propagated than most of the family. It is done generally by dividing the roots immediately after the bloom is over for the early flowering sorts, and in the spring for the late ones, or the roots may be divided at the season of flowering with success, if cut to the ground.

The generic name Phlox is from a Greek word signifying flame. The plant so named by the ancients is supposed to be an Agrostemma, a very different plant; our Phlox of course was not then known. It belongs to the class Pentandria (five stamens); order Monogynia (one stile); natural order Polemoniacæ, from Polemonium, its type.

* The sad intelligence of the death of this gentleman has recently been announced. His loss will be deeply felt by the friends of Botanical science.

"He had crossed from Texas to the peninsula of Florida, with the intention of exploring the botanical riches of that country; but finding the season unfavorable, he sailed over to Havana, intending to spend a short time there, but died soon after his arrival."

The character of the genus is a three celled capsule (seed vessel.) Corolla (flower) salver shaped, divided into five segments with a conspicuous tube more or less curved. Stigma (the top of the pistil or central part of the flower) trifid (three parted); a deeply small five cleft calyx (the lowest portion of the flower, or that which forms its outer covering in the bud, generally green.)

We will now begin with the earliest species, and proceed in the order of the time of their flowering.

Phlox subulata. The leaf is subulate or awl shape; that is, narrow at the base, and becoming more or less curved to one side at the point. This pretty species displays its showy pink flowers the last of April, and in such profusion as to conceal its yellowish green foliage, and continues in bloom for nearly a month, and is companion with the two following, and like them, from four to six inches high. It is known by the common name of moss pink. It can be so rapidly increased that it may be used to advantage for edgings, but requires some care to keep it in order.

Phlox stolonifera. (Creeping.) The plant puts forth suckers or shoots near the surface of the earth, which take root, something after the manner of the strawberry. Leaves ovate (egg shaped) brownish green; stem erect, bearing a few large deep red flowers which begin to expand a few days later than the preceding. A very lovely species and worthy of cultivation.

Phlox nivalis. (Snow white.) The flowers are brilliant snowy white, marked with orange in the centre, on the end of the branches, in bunches from three to five, and make their appearance from the 10th to the middle of May, and continue until the first of June. If the autumn is mild as was the last, it will produce a second crop, but not in such profusion. Leaves setaceous (bristly) shining deep green. This is the most tender, and is generally more or less injured without a little protection, and it is undoubtedly one of the most elegant of the family.

Phlox divaricata. Branches divaricate; that is, spread out so far from the stem, as to form more than a right angle with it above. This beautiful species flowers the last of May, very large, pale blue, on lax decumbent stems, one foot high. Leaves ovate lanceolate, (egg shaped at the base tapering off at the point like the ancient lance) This may be considered one of the finest, but has not been so extensively disseminated as some of the tribe.

Phlox maculata. The stem is dotted with dark spots, from

which circumstance it receives its generic name, maculata, (spotted.) It is one of the most common sorts, and found ornamenting almost every garden; frequently known under the name of Flora's bouquet. The flowers are so pretty, one might readily imagine the fair goddess would not be indifferent to its charms. It begins to show its purplish red flowers the last of May, which are crowded on an oblong spike, and continues long in bloom: if cut down immediately after flowering, a second display may be expected in August or September. Leaves lance oblong (long lance shape); glabrous (smooth); margins rough; stems rough; two feet high.

Phlox suaveolens. Sweet scented. It has white, sweet scented flowers arranged in the same manner as the last; stem without spots. Leaves ovate lanceolate, quite smooth. The height and time of flowering the same as P. maculata, and by some considered as only a variety of it. It is one of the most delicate of the species and when grown with the last described, makes a fine appearance.

Phlox carnea. Flesh colored. This delicate species commences flowering the middle of June. After its first display it continues to flower sparingly through the summer and autumn. Leaves ciliated (eyelash haired) lowest setaceous, upper one linear lanceolate (narrow lance shape.) Branches from three to five flowered.

Phlox Listania. In honor of Lady Liston, but I cannot ascertain who her ladyship was. A beautiful new species with fine red flowers in June; a foot and a half high. Foliage broader than in most species; radical leaves rhomboidal; upper one ovate lanceolate.

Phlox Shepherdia. Probably in honor of Mr William Shepherd, curator of the Liverpool botanic garden. A beautiful species about three feet high, with purplish red flowers in long spikes or panicles. Leaves lance oblong; commences flowering middle of July.

Phlox acuminata. Leaves acuminate (taper pointed) ovate. Flowers the last of July, purple; crowded on its very regular lateral branches, forming very dense, flatish pyramidal heads, or panicles. Three feet high, very showy.

Phlox pyramidalis alba. White pyramidal. One of the most elegant of the species. Flowers pure white; begin to open the first of August, continue through the month in perfection, and frequently through September. The flowers are so arranged on the lateral branches as to form a beautiful pyramid; four feet high in favorable situations; leaves heart ovate, acute, smooth.

Phlox pyramidalis purpurea. Purple pyramidal. Another ele-

gant species, and resembles the last, except in color of the flowers which are fine purple; at the same time and height. In the morning when covered with dew, or in wet weather, the flowers appear bluish purple, but in fair weather red purple.

Phlox hybrida. A beautiful seedling found between masses of the white and purple pyramidal, and in appearance the same, excepting the color of the flowers, which are fine pink, shaded with purple.

Phlox paniculata. Flowers in panicles; (loose irregular bunch of flowers with subdivided branches); in this case the bunch is compact like the lilac; it has a very graceful appearance, the panicle inclining to one side of the stem. One of the tallest of the family; frequently exceeding four feet in a strong soil; stem smooth erect; leaves lanceolate flat; margins rough; flowers fine pink, continue in perfection through August.

Phlox carolina. From the Carolinas. A handsome species with ruby purple flowers in August, in subfastigiate corymbs (nearly flat tops, inclining a little to the pyramidal); leaves lance ovate.

Phlox tardiflora. Late flowering. Flowers white, arranged on long spikes; two and a half feet high; last of August and September. Leaves oblong lanceolate.

Phlox undulata. The margin of the leaves slightly undulated; lance oblong; stem erect, smooth, three feet high; the latest species flowering in September, and retains its beauty long after the commencement of frosts, and lingers to the confines of winter. Red, many of the flowers turn white, which gives its panicled corymbs or heads a variegated appearance.

These are all the species that I have cultivated. The following are said to be fine, viz: P. glaberrima, P. suffruticosa, P. americana, P. intermedia, P. reflexa, and P. pilosa. One of the most desirable of the family is P. variegata; the leaves are beautifully variegated. This has been imported repeatedly, and as often lost. I am not certain whether it is in any collection in this region or not, but think it is not.

It is a notorious fact that most of our beautiful North American plants from the west and south, have first been transported across the Atlantic to our English friends, and from thence find their way back to this country. The number of the species of Phlox have been greatly increased within a few years past, through the indefatigable exertions and persevering spirit of the lamented Drummond, Douglass and other distinguished botanists. More than sixty species are found in the English catalogues. Probably not half that number

are in any collection in this vicinity. Within the past year many new ones have been ordered, but unfortunately most of them were received in such bad condition, that but few of them were saved. It is gratifying to know that some have been added to our lists, and it is to be hoped that the enterprizing spirit of our amateurs will not be damped by past disappointments; but that soon we may have the pleasure of seeing all this extensive genus, flourishing in our own soil.

In the same natural family with Phlox is found the genus Polemonium, belonging also to the same artificial class and order. "Polemonium is from a Greek word signifying war. Pliny relates, that the plant which he called by this name received its appellation from having been the cause of a war between two kings, who could not agree which of them discovered its first virtues. It was also called Chilodynamia, from Greek words, a thousand, and power, on account of its extraordinary merit. The plant which possessed all these good qualities, is now forgotten. Its name has descended to a flower which ornaments the garden, but which preserves nothing of the virtue of its progenitors, beyond a slight vulnerary quality.".

P. cœruleum. Blue flowered. This is one of the old standard border flowers, and is known by the common name of Jacob's ladder, from its beautiful pinnately cleft leaves (leaflets arranged on each side of a common petiole or leaf stem.) Its generic character is a fine cleft campanulate (bell-shaped,) calyx; the corolla also campanulate, with a four or five lobed erect border, and having its short tube closed up by five staminiferous valves. The stigma trifid; the capsules roundish, of three cells, each cell many seeded; the seeds oblong, and somewhat triangular. Its lively blue flowers, nodding, on the ends of the branches. There is another variety with white flowers, each variety worthy of a place in the flower department, being perfectly hardy and of the most easy cultivation; flowers in June; two feet high.

[To be continued.]

ART. VI. *Cultivation and Management of the Buckthorn (Rhamnus Catharticus) for Live Hedges.* Communicated by E. HERSY DERBY, Esq.

I HAVE great pleasure in complying with your lately expressed wish, that I should furnish for the pages of your useful and highly interesting Magazine, some remarks relative to the cultivation of the Ameri-

ican Buckthorn, or Rhamnus catharticus, for the formation of live hedges. I have, myself, long been convinced of the superior durability, economy, and efficacy of this method of enclosure, over those in more common use among us; and have had much pleasure in watching, for the last few years, its steadily increasing adoption by the farmer and horticulturist of our country. The rapid increase of our population, and the consequent vast consumption of timber for other and more valuable purposes, by increasing the relative cost of the old fashioned wooden fences, must eventually render the introduction of hedges here, advantageous, if not absolutely essential, from motives of utility and economy; while the lover of rural scenery will hail with pleasure the picturesque charm of their verdant beauty.

It is now about thirtytwo years, since I first attempted the formation of a live hedge as a boundary for my own pleasure-grounds. My first experiment was made with the English Hawthorn, the plant commonly used for the "trim hedgerows" of England, and particularly well suited to that moist climate, but poorly adapted to our dry summers; it is also liable to the attacks of the Borer, which in some instances has destroyed large portions of the hedge, and is almost invariably assailed early in August by mildew and blight, which rob it of foliage, and cause it to assume a wintry appearance. My next attempt was with the Triple Thorned Acacia, a native of our Western States;—but this plant not being adapted to our climate, was too tender to bear its changes, and suffered both from the heat of our summers and the severity of our winters, and the result, in both cases, was a decided failure. I also tried the Crab Apple Tree, but without better success.

In 1809 I made another trial, by setting out some young plants of the American Buckthorn, and this time with perfect success; this hedge, which is about twenty rods long, has never failed in any part, and is now a fine healthy fence, having, during twentysix years, needed no repairs but the annual clipping, which is easily performed by a common laborer. The plant is a hardy one, sending out many small branches, which naturally interlace. Encouraged by the entire success of this experiment, I have continued to enclose my garden and other parts of my grounds with the Buckthorn; I have now about one hundred and twenty rods in fine order, and am entirely convinced of the efficacy of this hardy native plant for an impervious hedge, and of its perfect adaptation to our climate, where it remains in full leaf from early spring until the severe frosts of a late autumn.

My method of cultivation, is, to place the plants of about three years'

growth in a single row, about nine inches apart, either in the spring or autumn; if the latter, I clip them the next spring within six inches of the ground, in order to thicken the lower branches, which is very important to the beauty of the hedge; the next spring I clip within two feet of the ground; and the third spring within three feet, with a little pruning at the sides each year, to form a regular surface.

Three years such management as I have described, will form a perfect and beautiful hedge, and it will afterwards need only such clipping as shall keep it within bounds, and suit the taste of the proprietor. The simplicity of this management, and the strength and hardihood of the plant, render success almost a matter of certainty; and I think the result cannot fail of being satisfactory to the cultivator. I have, within a few years, furnished and distributed into different sections of the United States, plants sufficient to extend several miles, and if the unqualified admiration of my hedges, expressed by those who visit my grounds, has any foundation in truth and sincerity, this plant has a decided preference over any other.

Salem, Dec. 21, 1835.

[The following, is from the pen of a gentleman who is travelling for his health and amusement, and is favoring us with remarks, suggested by the scenes and events which are presented in the course of his peregrinations.]

Art. VII. *Leaves from my Note Book.* No. I.

Pittsburg, Dec. 6, 1835.

Thomas G. Fessenden, Esq.—In compliance with a partial promise made to you before I started on my journey to the far West, I send you a few reminiscences and incidents, premising, however, that the season for beauty in horticulture and floriculture has already given way to the chill and dreary winds of winter, and, therefore, my remarks must depend, in a great measure, upon inquiry, rather than on the more pleasing and practical ground of actual observation. Notwithstanding, I hope I shall find something worthy of record, at this season while the beauties of Flora and Pomona, which combine to render your pages interesting, are taking a winter's sleep.

Behold me, then, on a gloomy morning in the month of November, on my first pilgrimage from our fair New England. Our journey to Providence was over a tract of country, as familiar to you as house-

hold words, naturally sterile, and having little to interest one who admires nature's beauties. The city of Providence, situate on both sides the Pawtucket, presents quite a fine appearance as you approach it from the east. I had not time, however, for a long ramble over it, and shall, if I return that way, reserve it for future remark. Every aspect of it seems to indicate activity and prosperity, and being a resting place on the way to New York, makes it much frequented by strangers. I believe it has not been much celebrated for its devotion to the art of Horticulture, which, I suppose, is owing to its rather unfavorable soil, though there are many beautiful seats in its vicinity, and a considerable quantity of fruit, &c., is brought to its market.

Newport, our next resting-place, is a large and pleasant town, thirty miles south of Providence, a great resort during the summer months, though at this season rather dull. It has the appearance of antiquity and decline. The streets are very handsome, being many of them ornamented by trees, and a great portion of the houses have large gardens, which give to the town a cheerful and beautiful appearance to one who can find beauty in a flower and a tree.

Having our usual accompaniment of dull weather, a thick fog at sea, our good captain comforted us by the assurance that the boat must lie there till it was clear. However, we made ourselves as happy as possible, by wandering into and around the town, and were very well rewarded by fine prospects and interesting and amusing rencontres. In one direction our walk brought us to the tower described in the "Red Rover," as "the Windmill," built of stone, on eight pillars, about three feet each in diameter, — the tower being about thirty feet. But as I must not linger so long on my road, I shall take the liberty of landing you at once in New York, after a pleasant sail up the Sound and East River.

Every one who visits New York is full of rapture at the splendid scenery of the Sound, and the East and North rivers; but I am such a Goth as not to admire them so very much more than the approach to our own beautiful "city of the hills." The scenery here is beautiful — so is the approach through the Islands to Boston, — certainly no one can help admiring the splendid prospect of the surrounding country — East and South Boston, and the country back, Dorchester and its beautiful seats, to say nothing of the approach on the land side through Roxbury, where the liberality and taste of such men as Lowell, Dearborn, &c. have formed seats unsurpassed by any in the country. However, in richness, variety or natural beauty — nature

has combined with art in rendering the vicinity of New York lovely and picturesque, and no one could fail of expressing admiration at such scenes as are here spread out before him — but still one can turn with pride and complacency to our own beautiful city and environs, and find much that is worthy of comparison with even this splendid natural picture.

I called, the next day after my arrival, at your friend Thorburn's Horticultural Repository, 11, John Street, where it has been removed from the original place in Liberty Street, which is now demolished to make way for the improvements everywhere going on in New York. It consists of two long, large rooms, a first and second floor. The first floor is devoted to seeds, &c. which are here packed, labelled, and sent off. The business seems to be carried on in a systematic and correct manner, and much is accomplished with little noise and bustle. The second floor offers a fine lounge for one who wishes to pass an hour listening to "fairy-like music," and feasting his eyes on beautiful paintings and engravings which hang on the surrounding walls. The aviary, at one end, is filled with many beautiful birds which fill the air with their songs — the native mocking bird, canary, &c. &c. all exerting their sweet voices in a mingled harmony, and fluttering as merrily as in their native woods. Gold and silver fishes are swimming about in large globes of water, seemingly contented and happy, if we may apply such terms to fishes, — and why may we not? The paintings and pictures are very beautiful and arranged with fine effect. This place is well worthy a visit by a stranger in the city, and I hope to see the time when your own establishment will vie with this in its ornamental, as it now does in its useful and curious attractions, and be a place of resort for those who are in search of the ornamantal in the animal as well as the vegetable creation. What more beautiful association than the bird and flower sending up sweet incense to their common creator, nature's God!

And Lawrie Todd — he who commenced with a single *geranium* (emblem of *preference*) — where is he? you may inquire. He is now enjoying the fruit of honest and persevering industry and enterprise, at Hallett's Cove, about six miles from New York. As I made a short stay in the city, I did not avail myself of the pleasure of calling on him, though I hope to do so when I return. I would give my best hat (not a bad one either for a traveller,) for a shake of his hard and honest hand, for I know it would be a heartfelt and cordial greeting. After my return to "mine inn," I looked over the "life of

Grant Thorburn," with much interest. I know of nothing more natural, unpretending and beautiful than his account of his first essays in a pursuit which brought him deserved wealth, favor, friends. Those who have not the work will feel gratified with an account of his first experience.

"One day, in the month of April following, I observed a man for the first time selling flower-plants in the Fly-market, which then stood in the foot of Maiden Lane. As I carelessly passed along, I took a leaf, and rubbing it between my fingers and thumb, asked him what was the name of it. He answered, a geranium. This, as far as I can recollect, was the first time that I ever heard that there was a geranium in the world; as, before this, I had no taste for, nor paid any attention to plants. I looked a few minutes at the plant, thought it had a pleasant smell, and thought it would look well if removed into one of my green flower-pots, to stand on my counter to draw attention. I remember after smelling the first leaf of the rose geraneum, and also when I received additions to my stock, how I was struck with wonder and amazement, at the power, wisdom, and goodness of God, in imparting to the *green leaf* of one plant, the fragrance of another, such as the Balm, Musk, Pennyroyal, &c. How condescending to our senses, how indulgent, as it were, even to our childish and playful fancies. It was thus my mind was struck, when I smelt the first leaf. Thinks I, it is strange that a *green leaf*, plucked from a plant no way similar, should possess all the flavor of the *flower* plucked from another."

And the spirit of this short extract pervades the whole volume, and makes its author in his old age an object of interest to all who admire a simple, childlike trust in an all-wise Providence, and who are fond of tracing the progress of perseverance and enterprise under the depressing influence of poverty and a humble sphere in life. How much better and more enduring is such a man's fame, than his, who earns it by the toils of war, or in the arena of politics!

There is one thing about the improvements in New York I very much like, and which, as you are a man of influence, I hope you will endeavor to impress on the Bostonians; — the disposition to ornament the streets with rows of trees, thus giving to them an air of freshness and beauty very much wanting in our large cities and in country towns, for nothing adds more to beauty than rows of trees along the public walks, which may be placed there for a trifling expense.

The Battery, St John's Park, Washington Square, and many other

public walks exhibit the taste of the New Yorkers in this respect, and their practice of making every open and beautiful piece of ground an object of ornament to the city, and a pleasant resort for the inhabitants, is worthy of observation. Apart from the beautiful scenery connected with these resorts, or in themselves alone, they cannot compare with our fine Common, of which Bostonians deservedly pride themselves, and which at a little expense might be made one of the most splendid places of promenade in the country.

Our ride to Philadelphia, over the Camden and Amboy railroad, and up the beautiful Delaware was truly delightful, especially the latter. New and beautiful scenes continually opened to view — with fine country seats, built in imitation of Gothic castles, with towers and battlements standing amid a fine growth of trees of every kind — and in other places fine farms laid out in regular squares, and well fenced, showing by large stacks of stalks still remaining in the fields a fertile and abundant soil — and again the distant mountain scenery, with small cottages at their base, such as we might well imagine to be the chosen abode of contentment and love. The fine growth of wood in some, and the fields green with fresh springing wheat in others, presented a scene which would have made a Yankee farmer's heart leap for joy.

The next day after our arrival at Philadelphia, I visited the Horticultural establishment of the Messrs Landreth, in Chesnut street. This, like the other regular establishments I have seen, is conducted with perfect system and regularity, and enjoys a deserved popularity wherever it is known. They have a seed-growing and nursery establishment of more than thirty acres connected with the Seed-store, about two and a half miles from the city, and which I shall visit on my return, as also Bartram's Garden, near Philadelphia, which the lateness of the season prevented at this time. I shall send a few more remarks in relation to this place in my next, if you think these cursory notes worth publishing in your Register. L'Ami.

Art. VIII. *Miscellaneous Matters.*

[From the Transactions of the Society for the Advancement of Gardening in the Royal Prussian States.]

On shortening the Tap Roots of Trees. The following principles are laid down:

1. An injury to any one part of a plant occasions a change in the developement of the other parts.

2. Roots and stems are always in a certain degree reciprocally proportioned to each other. [Roots produce branches, and branches reproduce roots.]

3. The tap root does not form a part of every plant, where it does so it is an essential part of that plant.

4. By shortening the top root, one or other of the following consequences will result: tender plants will be more easily destroyed by severe weather; all sorts of plants by dry weather, from their roots not being so deep in the soil: the wood of timber trees will be less durable, their trunks shorter, and their heads broader and less high; and fruit trees will blossom earlier and more abundantly, and their fruit will be larger and better flavored.

5. To transplant trees without injuring their roots is difficult in proportion to the age of the tree, and the extent of its roots.

6. When the tap root descends into a bad subsoil, it brings on diseases in the tree.

To heal the Wounds on Fruit Trees. When a tree is cut, or otherwise wounded, smooth the place with a sharp knife, and if cankered, scrape or cut it all out; then put half a pound of tallow to two pounds of tar, warm it over the fire till the tallow is melted, then add one ounce of salt petre, and stir it together, and lay it into the parts which you want to heal.—*Genesee Farmer.*

On Preserving Young Trees in Nurseries, &c. from Rabbits, Mice, &c. Damage is often done to young fruit trees and other trees by mice in winter, and it has been recommended to tread the new fallen snow, firmly about their stems, which will render it impossible for the vermin to make their way through the snow in order to gnaw the bark from the trees.

Vegetable Chimney Ornaments. In winter, an elegant chimney ornament may be formed by cutting the head or thick end of a carrot, containing the bud, and placing it in a shallow vessel of water

of a very handsome appearance, and heightened by contrast with the season of the year.

Botanical Experiments. Two young beech trees, planted in the same soil, at a small distance from each other, and equally healthy Young and delicate leaves unfold themselves, forming a radiated tuft were pitched upon as the subjects of the following experiments. They were accurately measured, and as soon as the buds began to swell in the spring, the whole trunk of one was cleaned of its moss and dirt, by means of a brush and soft water. Afterwards it was washed with a wet flannel, twice or thrice every week till about the middle of summer. In autumn they were again measured, and the increase of the washed tree was found to exceed the other two to one.—*Brattleboro paper.*

To clear Barn and Out Houses from Mites and Weevils. The following method is practised in Germany for granaries infested by mites and weevils. Let the walls and rafters above and below of such granaries be covered completely with quick lime, slackened in water, in which trefoil, wormwood and hyssop have been boiled. This composition should be applied as hot as possible.

Paint made with Potatoes. Take one pound of potatoes skinned and well baked; bruise them in three or four pounds of boiling water, and then pass them through a hair sive; to this add two pounds of good chalk or fine powder, previously mixed up with four pounds of water, and stir the whole together. This mixture will form a sort of glue capable of receiving any kind of color, even that of powdered charcoal, brick or soot, which may be used for painting gates, palings, or other articles exposed to the air.

To obtain good Timber. Bark the tree the year before it is cut down. By this means, the alburnum is converted into hard and durable wood.

Transplanting Peach Trees. A horticulturist informs us that he has lost several peach trees in consequence of the decay of the tap root. In transplanting, the tap root is usually and properly cut off, but is liable to decay, and the tree eventually to become hollow from the wound inflicted in taking off the root. He says that when the tap root, or any other root of considerable size is shortened, a composition should be applied to the wound; that he has found equal parts of tar

and yellow ochre an effectual application for that purpose. Any other composition which is proper for use in pruning and grafting trees will answer the same purpose.—*N. E. Farmer.*

To train Oxen to the Draught. Put a broad strap round their necks, fasten one end of a cord to it, and the other end to a large log of wood; permit the ox to drag it about as he feeds in the pasture before he is put in harness; by which his docility is much forwarded. —*Transactions of the Society of Arts.*

To destroy Rats and Mice. The following has been recommended for this purpose, and is worth the trial. Take equal quantities of powdered oatmeal and unslacked lime; mix them by stirring, without adding any liquid, and put a small quantity in a place infested, by rats or mice: they will swallow this preparation, become thirsty, and the water which they will drink will slack the lime, and destroy them.

Destruction of Insects. The leaves of walnuts steeped in water, and that infusion mixed with lime-water, soap suds and urine, are found very efficacious for destroying slugs and worms in the ground, and insects on trees.

Mixing Soils. It was a maxim of Kliyogg, a famous philosophical farmer of Switzerland, that "every species of earth may be instrumental to the improvement of another of opposite qualities."

Tanner's Bark and Leaf Mould for Strawberries. In the last number of the Farmer I notice a communication by H. H., on the use of tanner's bark in the cultivation of the strawberry. I tried it some years since, and though a very good thing, it has some disadvantages: First, it is generally found to impart a disagreeable flavor to the fruit: secondly, it cannot be procured at all times, and then but in few places, unless at too much expense. I have this year tried a substitute, which I recommend in preference, as every wood or coppice will furnish the material.

Rake away all the loose leaves from a corner or hollow, where they annually settle, and gather the coarse mould beneath; or prefer the decayed wood from an old stump or fallen tree, that has decomposed, until it has become nearly in appearance like tanner's bark. It is without that astringent quality, and will answer in all respects, prevent weeds, preserve moisture, warmth in winter, food in spring, and

by selecting the wood from different trees, a variety of tints may be formed that will make a pleasing appearance when this chilly season deprives us of so much of our garden foliage. I subjoin my method of cultivating. In the fall, cover the beds slightly with straw, and burn *all* down: then dig in between the hills with a trowel or deep hoe, rake smooth, and replace with a fresh dressing two inches thick, for winter protection, &c. The hills ought to be *no* more than twelve inches apart, and two or three stems in a hill. While the fruit is setting, water morning and evening, with a table spoonful of salt to each pail of rain or river water; if well watered, it should be exposed to the sun some days. A bed planted *from* any good variety in *full bearing*, will, thus treated, always insure a crop. Early in September is the best time to plant, choosing the first made runner plants, or some offsets for immediate bearing. The runners will come in the second and third season.—*New York Farmer.*

Orchards in alternate Rows, or Quincunx order. Xenephon thus describes the gallant plantation of Cyrus at Sardis, as rendered by Cicero: "Arbores pari intervallo sitas, rectos ordines et omnia per pulchre in Quincuncum directa" — that is, rows and orders so handsomely disposed or five trees so set together, that a regular angularity, and thorough prospect, was left on every side, owing this name to the "Quintuple number of trees," as thus figured, viz:

"That the same was used in later plantations, is plainly confirmed from the commanding pen of Varro, Quintilian, and handsome description of Virgil, in his second Georgic. See the garden of Cyrus, &c. by Sir Thomas Brown, of Norwich, M. D."—*Farmers' Register.*

The Seckel Pear. In mentioning the fact, a few days since, that some of the fruit of the *original* Seckel Pear tree formed a part of the collection at the late Horticultural Exhibition held in this city, we stated that the tree was known as far back as 47 years. We are now

able to state that there are among us gentlemen who can trace its existence to a more remote period. The venerable Bishop White, whose memory is remarkable for its strength and correctness, says, that when he was a boy, about seventy years ago, there was a breeder in this city known by the name of Dutch Jacob, who was a great sportsman. At a certain season of the year he was known by his neighbors and others to bring home from his excursions very delicious pears, but he would never tell any body where he procured them. About that period, the London Land Company, which owned some land below the city, made a sale, and Dutch Jacob purchased the lot upon which his pear tree stood. It afterwards became the property of Mr Seckel, and now belongs to the estate of the late Mr Girard. The Seckel pear is now known all over the United States, and we presume in many parts of Europe, as one of the most delicious of fruits.—*Phil. Gaz.*

Influence of Color on Heat, the Deposition of Dew, and of Odors. Dr Stark, in a paper in Jameson's Journal, vol. xvii. p. 65, has shown, by experiment, that one principle operates in the production of all the above results. A black color, whether in solids or fluids, absorbs heat more rapidly, and parts with it most rapidly; dew is also deposited more rapidly on this color than on any other, and with proportionate rapidity evaporated from it. Odors, whether agreeable, offensive, or of infectious diseases, are, in like manner, absorbed with greater rapidity, and in greater quantity, in given time, by black colors; and discharged by these colors with proportionate quickness. The other colors are next to black in the order of blue, brown, green, red, yellow, and lastly white; which last absorbs and gives out heat, dew, and odor more slowly than any other color. These facts will afford valuable hints to gardeners for the colors of walls, of walks, of rockwork, of soils, of coverings for protection, and even of their dresses.—*Gard. Mag.*

Anatomized Leaves. The following observation on these beautiful exemplifications of the structure of leaves of vegetables, we copy from Maund's Botanic Garden, No. 125: "The exquisitely beautiful structure of the vascular system of leaves can be duly appreciated by those only who have seen specimens properly prepared. Marcus Aurelius Severinus, who published in 1645 a description of the skeleton leaf of cactus opuntia, is said to have been the first to adopt an artificial method of preparing these interesting objects of vegetable struc-

ture. Although we have seen directions for effecting this, we could not, confidently, publish them; but by the favor of W. T. Iliff, Esq. of Newington, we are enabled to gratify our readers. He has obligingly sent us beautiful specimens of leaves, completely cleared of their cuticle and pulpy matter, exhibiting the most exquisite network of vessels that can be imagined; and also the following directions for preparing them. He says, 'Many individuals who have seen the fibrous structure of vegetables, have expressed much admiration at their beauty, and regret at the difficulty attending the preparation of the same. I am induced, therefore, to state to your readers, that the difficulty rests with themselves. If the seed vessel of the datura stramonium or hyoscyamus niger, the calyx of the physallis alkekengi, or nicandria physaloides, are put in water, and allowed to remain, without an exchange of water, until decomposition is carried to the requisite extent, they may be freed from their cuticle and the pulpy matter; and after macerating them a short time in fresh clear water, they may be bleached by immersion in a diluted solution of chloride of lime, say one sixth of the chloride to five sixths of water. They must be well washed from this fluid, when whitened sufficiently, and quickly dried, either before a fire or in the sun. Care must be taken not to allow the destructive process to be carried too far, or that fibrous structure will become injured; nor allow the preparations to remain too long in the chloride, or injury will also arise. In selecting leaves for this purpose, those with the strongest fibre should be preferred. Their fibrous parts, and also the seed vessels and calyces alluded to, should be cleared by a camel's hair brush, or fine pen, from such portions of cuticle or pulpy matters as adhere too strongly to be removed by a small stream of water. The leaves of the ceratoria siliqua, ruscus aculeatus, and ilex, are, with the foregoing, the most easy to prepare. I have tried a variety of other methods, none, however, answers so well as the one I have explained, and therefore I communicate it without fear of its being attended with difficulty, if properly applied. Some of the specimens may require several months' maceration before the preparation can be completed.'"—*N. Y. Farmer.*

Fragrance of Flowers. It has been stated that the fragrance of flowers depends upon the volatile oils they contain; and these oils, by their constant evaporation, surround the flower with a kind of odorous atmosphere; which, at the same time that it entices larger insects, may probably preserve the parts of fructification from the ravage of the smaller ones. Volatile oils, or odorous substances, seem

particularly destructive to these minute insects and animalcules which feed on the substance of vegetables; thousands of aphides may be usually seen in the stalk and leaves of the rose, but none of them are ever observed on the flower. Camphor is used to preserve the collections of naturalists. The woods that contain aromatic oils are remarked for their indestructability, and for their exemption from the attack of insects: this is particularly the case with the cedar, rose-wood and cypress. The gates of Constantinople, which were made of this last wood, stood entire from the time of Constantine, their founder, to that of Pope Eugene IV. a period of 1100 years.—*Davy.*

Art. IX. *Faneuil Hall Market.*

We have commenced with this number, and shall continue under this head through all of the succeeding numbers, a report of the prices of horticultural produce in this market, with such observations as may from time to time be suggested to us.

The state of the fruit market will receive our particular attention. We deem it of great importance to have our market supplied with fruits of the very best varieties. It can be, and it ought to be; and to promote this end, we shall give, as far as practicable, the correct names of the valuable kinds that are exposed for sale, where they may be found, and by whom raised. This, we think, will excite emulation among those whose business it is to supply the market, and will eventuate in great good to the cause of horticulture, and of immediate reward to those concerned.

REPORT OF THE PRICES OF FRUITS AND VEGETABLES.

Apples, Baldwins, per barrel,	$2 00	Horseradish, per pound,	12½
Russetts, do.	1,75	Lettuce, Tennis ball, per head,	12½
Pears, Iron, per bushel,	1,50	Radishes, Early scarlet, per bunch,	12½
Cranberries, do.	1,50	Potatoes, Chenango, per bushel,	50
Cauliflowers, per head,	12½ a 75	Eastport, per barrel,	2,00
Celery, White solid, Celeriac and		Sweet, per bushel,	1,50
Rose colored, per root,	12½ a 25	Squashes, Valparaiso, per pound,	1½
Chesnuts, per bushel,	2,00	Canada,	2
Cabbages, Red Dutch, per doz.	75	Cuba,	2
Green Globe Savoy,	50	Sicily,	
Large Drumhead,	50	Shagbarks, per bushel,	2,00